

DATE: January 22, 2004

FILE REF: [Click **here** and type file ref.]

TO: Rest Lake Dam/Manitowish River Work Group

FROM: Jim Kreitlow

SUBJECT: Minutes of our January 7th, 2004 meeting.

I want to thank all the group members who attended our second meeting on January 7th, 2004. The purpose of the meeting was to begin to provide background information to work group members so they can gain a better understanding of the issues and have their questions answered. The dialog would also help us (DNR) identify data or study needs. Ultimately this information presented and discussed at this meeting and future meetings will help us determine/evaluate options or proposals for operational change that we all can agree to.

I will summarize the meeting following the three information items that were presented.

1. Summary of Sturgeon work/data-Jeff Roth
2. Rest Lake Dam Operation-Rob Olson.
3. Evaluation of 10 years of flow data on the Manitowish River-Steve Jaeger.

I want to thank Jeff, Rob and Steve for their excellent presentations and taking the time to speak to the group.

Participants

1. Jim Kreitlow, WDNR, 107 Sutliff Avenue, Rhinelander, WI. 54501, Kreitj@dnr.state.wi.us 365-8947.
2. Bob Martini, WDNR, 107 Sutliff Avenue, Rhinelander WI. 54501 martire@dnr.state.wi.us 365-8969.
3. Jeff Roth, WDNR. 5291 Statehouse Circle, Mercer, WI. Rothj@dnr.state.wi.us 476-7847.
4. Steve Gilbert, WDNR, 8770 County Highway J, Woodruff, WI. 54568 Gilbes@dnr.state.wi.us 358-0229
5. Steve Jaeger, WDNR, Madison, WI. Jaeges@dnr.state.wi.us (608) 267-7657.
6. Jim Killian, WDNR, Madison, WI. Killij@dnr.state.wi.us (608) 264-6123.
7. Terry Cummings, WDNR, 107 Sutliff Avenue, Rhinelander, WI. Cummit@dnr.state.wi.us 365-8938.
8. John Hansen, Town Chairman, 217 Spider Lake Road, Manitowish Waters, WI. 54545 Jlhunj@centurytel.net 543-2438.
9. Les Jacobson, Friends of the Manitowish River, PO Box 202, Manitowish Waters, WI. 54545. 543-2501
10. Bob and Helen Townsend, Friends of the Manitowish River, 73 River Access Road, Manitowish Waters, WI. 54545. Bhtownsend@yahoo.com 543-2166.
11. John Bates, Friends of the Manitowish River, 4245 North Highway 47, Mercer WI. 54547 476-2828.
12. Greg Holt, Friends of the Manitowish River, holthorse@centurytel.net
13. Rob Olson, Xcel Energy, 1414 West Hamilton Avenue, PO Box 8, Eau Claire, WI. Robert.w.olson@xcelenergy.com 839-1353.
14. Mary Sinkus, Manitowish Waters Lakes Association, PO Box 458, Manitowish Waters, WI. Pinebarons@centurytel.net 543-8464.

15. Rita Mazer, Manitowish Waters Lakes Association, 288 Highway 51, Manitowish Waters WI. 54545 543-2538.
16. Mona Weichmann, Manitowish Waters Lakes Association, 543-2562.
17. Jack King, Manitowish Waters Lakes Association, PO Box 286, Manitowish Waters WI. 54545. Jgroveking@aol.com
18. Gayle Strand, Manitowish Waters Lakes Association, 10081 W. Ives Street, Marshfield, WI. 54449.
19. Harland Klagos, Manitowish Waters Alliance, 40 West Bay Road, Manitowish Waters, WI. 54545. Klagos@centurytel.net 543-8246.
20. Bill Lambrecht, Manitowish Waters Alliance, 284 Point O'Pines Road, Manitowish Waters, WI. Clk28a@aol.com
21. Don Rayala, Manitowish Waters Alliance, 325 Alder Lake Road, Manitowish Waters WI. 54545. 543-2225.
22. Eleanor Butler, PO Box 157 Manitowish Waters, WI. 54545. Enzymes@centurytel.net
23. Tom Feldkamp, tfeldkamp@centurytel.net 543-2149 Fax 543-2150.
24. Arlen Wanta, Turtle Flambeau-Trude Lake Property Owners Association, 2795 North Flowage Road, Park Falls, WI.
25. Jim Leever, Turtle Flambeau-Trude Lake Property Owners Association, 4792 West Franks Lane, Park Falls, WI.

Members Absent

1. Pete Rasey, Manitowish Waters Lakes Association, 543-2176.
2. Jean Rein jarein@centurytel.net
3. Jeff Scheirer, WDNR, Park Falls, WI. Scheij@dnr.state.wi.us 762-4684 (extension 131).
4. Ronald Gaa, Manitowish Waters Alliance PO Box 9, Manitowish Waters, 54545. 543-2505 Fax 543-2188.
5. Judi Schmidt Arnold, Manitowish Waters Alliance, PO Box 98, Manitowish Waters, 54545. Judisa@shrealty.com 543-2300.
6. Lloyd Bonech, Manitowish Waters Alliance, fatnbarb@yahoo.com 543-2511.
7. Joe Stengele, 321 Point O' Pines Road Manitowish Waters WI. 54545.

Informational Items

Presentation on Lake Sturgeon

Overall the Manitowish River has a diverse native fish specie assemblage with good size structure of game fish. Lake Sturgeon work began in 1990 as a result of a survey that turned up a few big sturgeons. This prompted the need to gain additional information on size structure. Since that time Jeff Roth has been tagging sturgeon. So far 107 fish have been tagged (Turtle Flambeau Flowage and the Manitowish River). In addition 12 fish were surgically implanted with radio transmitters to track movement via radio telemetry.

Since 1990 no juvenile fish have been captured indicating that this sturgeon population is not self-sustaining. There has been no natural recruitment documented. Because of this Jeff initiated a project to see if he could manually spawn and fertilize sturgeon eggs. The fish would be reared at Wild Rose Fish Hatchery to stock back into the system. Jeff was successful at obtaining eggs from a viable and typical spawning population of sturgeon from the North Fork of the Flambeau River (1994) and an atypical spawning population in Benson Lake on the Manitowish River (1998). Captured fish (females) were injected with a hormone that facilitates spawning. There was an 80 % hatching success of the eggs from the North Fork of the Flambeau River and ~20 % hatching success of the eggs from the one female from

Benson Lake. In 1994 152,578 1-inch fingerlings and 14,724 larger fall fingerlings were stocked back into the Manitowish River and the Turtle Flambeau Flowage (Lake of the Falls). In 1998 17,895 3-inch fish and 12,036 larger fish were restocked.

What have we learned so far?

1. The sturgeon population in the Turtle Flambeau Flowage and Manitowish River is not self-sustaining.
2. Could be related to (What could have changed over time?):
 - A. Rusty crayfish predation on eggs.
 - B. Direct competition with a large redhorse population.
 - C. Aging population of sturgeon.
 - D. River flows and temperature.
 - E. Restriction in fish movement.
3. There are two spawning areas in the Manitowish River.
4. Telemetry has shown there are two distinct populations (Flambeau Flowage and Benson Lake).
5. There has been good survival of the stocked fish.
6. Adult and juvenile (stocked) fish move into the Manitowish River in spring (~ 25 mile migration).
7. Growth is slow (~ 1 inch in eight years).

Where do we go from here (time/funding dependent)?

1. Would like to conduct a population estimate based on the 107 fish tagged and recaptured.
2. What kind of recruitment is needed to maintain a viable population?
3. Will be working with the US fish and Wildlife Service to conduct larval drift sampling.
4. Try to obtain a better sample of fish and fish eggs for propagation.
5. Determine preferred river flows and temperature.
6. Monitor fish movement in greater detail (adults and juvenile fish) or on a daily basis.
7. Determine if redhorse suckers are eating sturgeon eggs.
8. Determine stocking success of fish stocked in Lake of the Falls.
9. Continue to do work we have done in the past (telemetry and tagging fish).
10. Collect data from a river (North Fork of the Flambeau) where there is typical sturgeon spawning.
11. Consult other sturgeon experts.

Questions from team members.

1. Is there evidence of sturgeon above the dam?
 - Fish surveys conducted by the DNR over the last 15 years in the Manitowish Chain have not turned up any sturgeon. These were primarily fyke netting and shocking surveys. No gill netting has been done. Before the construction of dams, sturgeon probably did migrate and were probably present above Rest Lake Dam into the upper Manitowish River system.
2. Is there any evidence of successful spawning that has resulted in new year classes of sturgeon?
 - As mentioned earlier, there is no recent evidence of successful natural recruitment of sturgeon in the Manitowish River. We have been successful at obtaining eggs and milt and raised these fish in a hatchery. These fish were replanted in 1994 and 1998 with good survival.
3. Are there other sites where we can gather information about sturgeon?
 - There is lots of information available about sturgeon in Wisconsin (Wolf River). We will begin to look at the North Fork of the Flambeau where successful spawning is taking place.
4. What other fish species are present in the Manitowish River?
 - Approximately 36-38 different species of fish are found in the Manitowish River. Survey reports are available from the DNR.

Operation of Rest Lake Dam

Xcel Energy owns 20 hydroelectric dams and they are a significant producer of hydropower in the Midwest. Xcel Energy is a majority shareholder in the Chippewa Flambeau Improvement Company (CFIC) who owns the Rest Lake Dam. Shareholders also include Fraser Paper (North American Hydro) and Dairyland Power.

The Rest Lake Dam was originally built in 1887 for log driving. The dam was purchased in 1912 by CFIC. The structure was completely replaced to its existing structure in 1926. In 1931 a barr fish lift was constructed. It was effective at passing walleye, northern pike, musky and redhorse suckers, but not sturgeon. It fell in disfavor because of vandalism and the perception that too many redhorse were passed, and was removed. In 1983 the Bridge deck was reconstructed. Minor maintenance has occurred since then. The dam is in good condition.

The old Railroad Commission in 1914 wrote the first order for operation. Dam operation was modified in 1915, 1937 and in 1939. The Public Service Commission order of 1939 is the last time operations were modified and it has been operated the same way for over 60 years. The DNR now has regulatory jurisdiction over the Rest Lake Dam.

Xcel Energy feels they are meeting the operational requirements of the order. Operating requirements of the order are attached. Ten lakes make up the Manitowish Chain totaling 4,200 acres. The watershed drainage area is 243 square miles which is considered a small in relation to the total Flambeau River drainage area. In times of low flow, water level in the Chain of Lakes is favored over downstream interests. The only value of the Rest Lake Dam to Xcel Energy occurs when the chain is drawn down in the fall and the water is used to supplement hydropower production at downstream facilities. In drought years the fall drawdown is more valuable than during high water years. Rest Lake Dam does not produce hydropower. Manipulation of flows is fairly straightforward. There are four spillway bays (in 9-foot sections) that contain stoplogs. Stoplogs are removed or added to each bay to manipulate flow.

Seasonal operations were reviewed. Work group members living downstream complained of fall flooding (3-4 foot vertical rise in water) as a result of fall draw down of the chain. They felt that equal consideration should be given to folks living downstream of the dam and the water should be shared equally/or reservoir interests should not be given a higher priority over downstream concerns. It was suggested that a staff gauge be set downstream and monitored to document vertical rise in water levels. This will be investigated.

Terry Cummings mentioned that Rest Lake Dam is a high hazard dam (must pass a 1,000 year flood flow). The 1,000-year flood is 2,500 cfs and the Rest Lake Dam is capable of passing 7,500 cfs. As a result, floodplain zoning should not allow building within 100-year floodplain as it would exist if there were no dam. This regulation is not enforced because Vilas County has not implemented floodplain zoning.

Evaluation of 10 years of flow data on the Manitowish River

The DNR has received 10 years (1994-2003) worth of electronic flow data from Xcel Energy. More data exists but these are the only years the data is available in electronic form. We feel that this is a representative sub-set of the data available. Steve Jaeger has been analyzing this information and presented some of his initial conclusions. The presentation covered the following topics:

1. Flow Frequency Distribution (1/1/1994-4/30/03)-This data was presented in a graph with the X axis showing reported flow over the dam and the Y axis showing the percentage of days reported flow is less than given flow.
2. Flow difference needed to refill chain-Based on lake volume versus chain elevation data, the following equation is an approximation that can be used to estimate the flow difference needed to raise or lower the elevation of the Manitowish Chain.

Average flow difference needed in cfs (cubic feet per second)= $70 \times \frac{\text{Change in lake elevation in feet}}{\text{Time in Months}}$

Example: To raise the lakes three feet in one month requires the average flow over the dam to be 210 cfs less than the average flow coming into the chain ($70 \times 3/1$).

3. A review of Manitowish River flows and lake elevation for an average (1997), dry (1994) and wet years (2002)-These graphs show the estimated flow into the chain, the water flow over the dam and the lake elevation for a given year. These three years were shown just to show the variability that can occur.

The last item covered under the flow monitoring was a review of eight questions/answers that I provided the work group at our November 19th meeting. The purpose of these questions/answers was to provide information about realistic expectations of flows and or limitations of the Manitowish watershed. This will help us propose options to consider for operational change. The eight questions/answers are attached.

Future Agenda Items (Tentative)

1. Presentation by Sturgeon for Tomorrow.
2. Relationship between levels/flows and aquatic habitat/community structure.
3. U.W Steven's Point/WDNR 2004-05 Manitowish Chain Fisheries Survey Plan-Jordan Weeks/Steve Gilbert.
4. More in depth information and discussion about flow changes and it's impact in the spring in filling up the chain. How much time is needed to fill the chain in the spring with various flows? How much water needs to be held back from the normal 42" drawdown as it relates to various flows and length of time to fill the chain to 102"?

Please send me any other requests for agenda items.

Next Meeting

Sometime in March.